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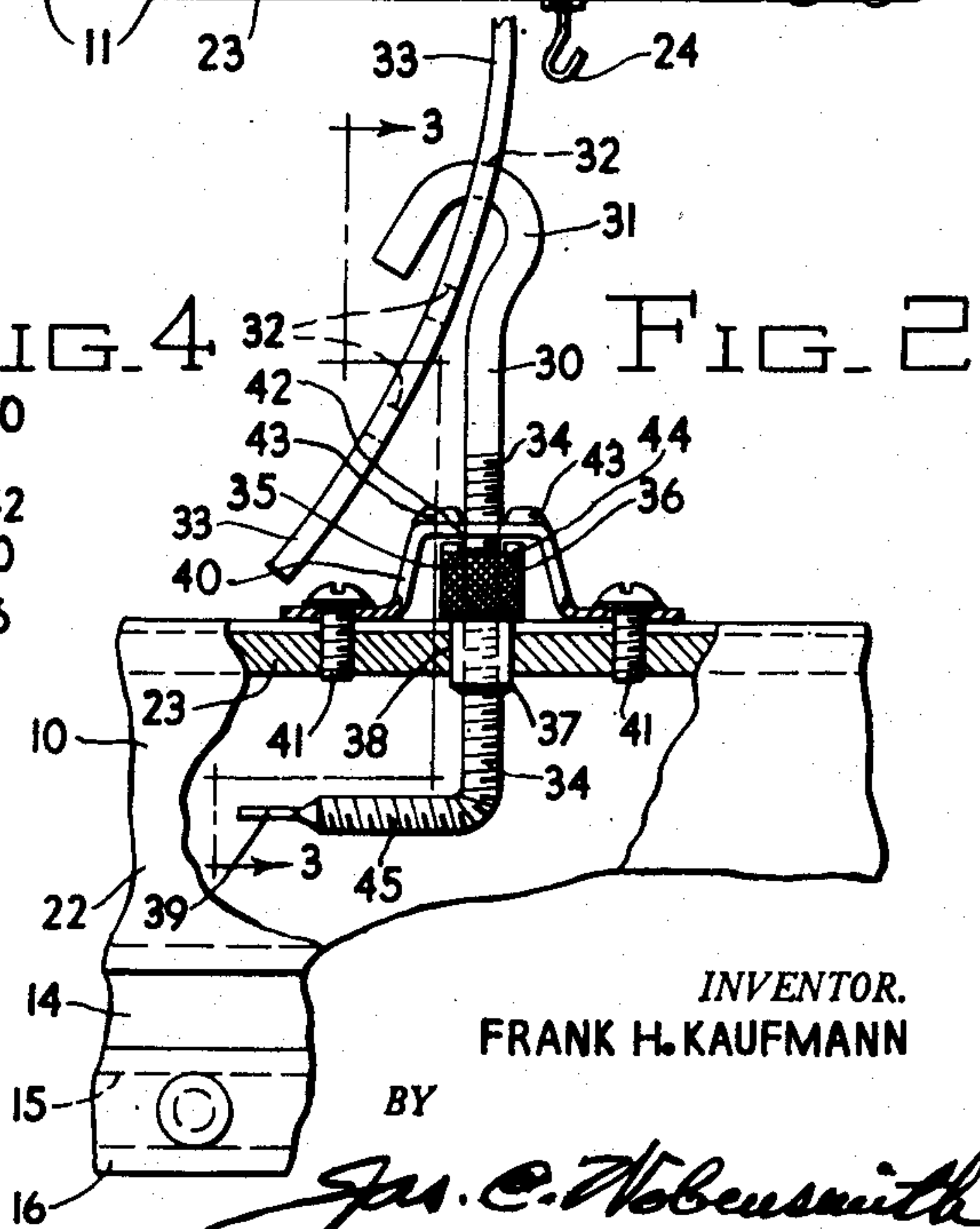
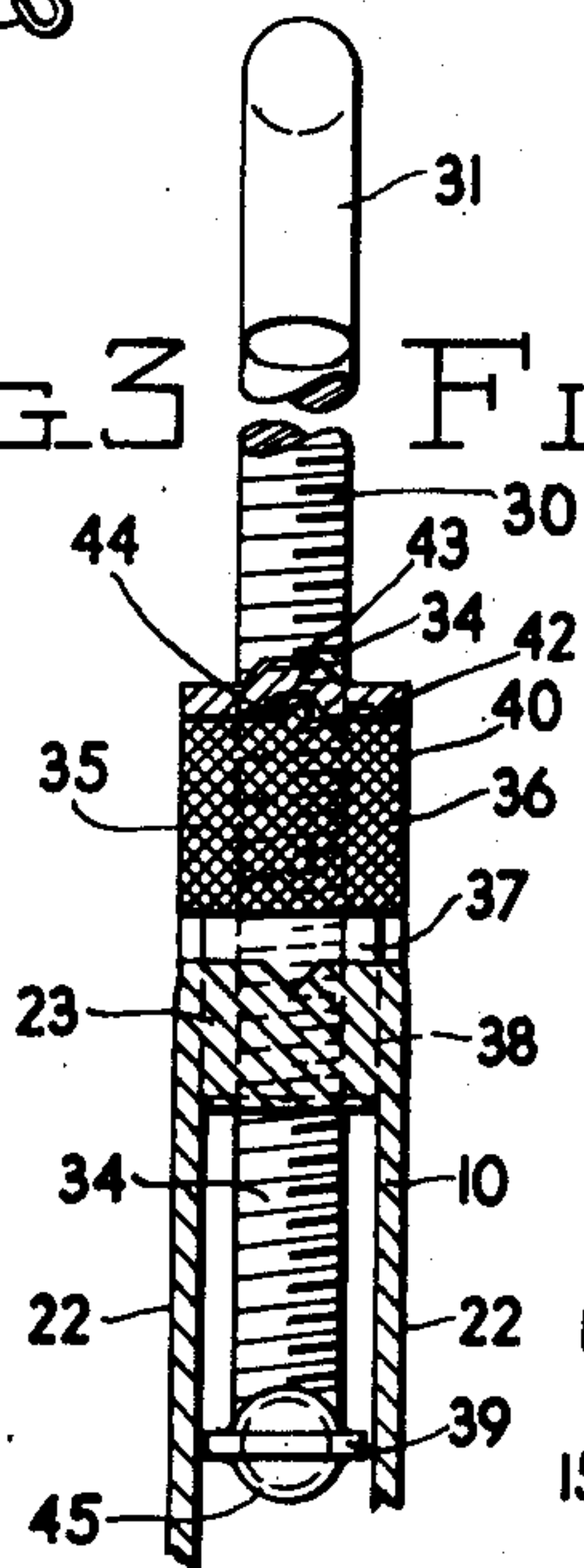
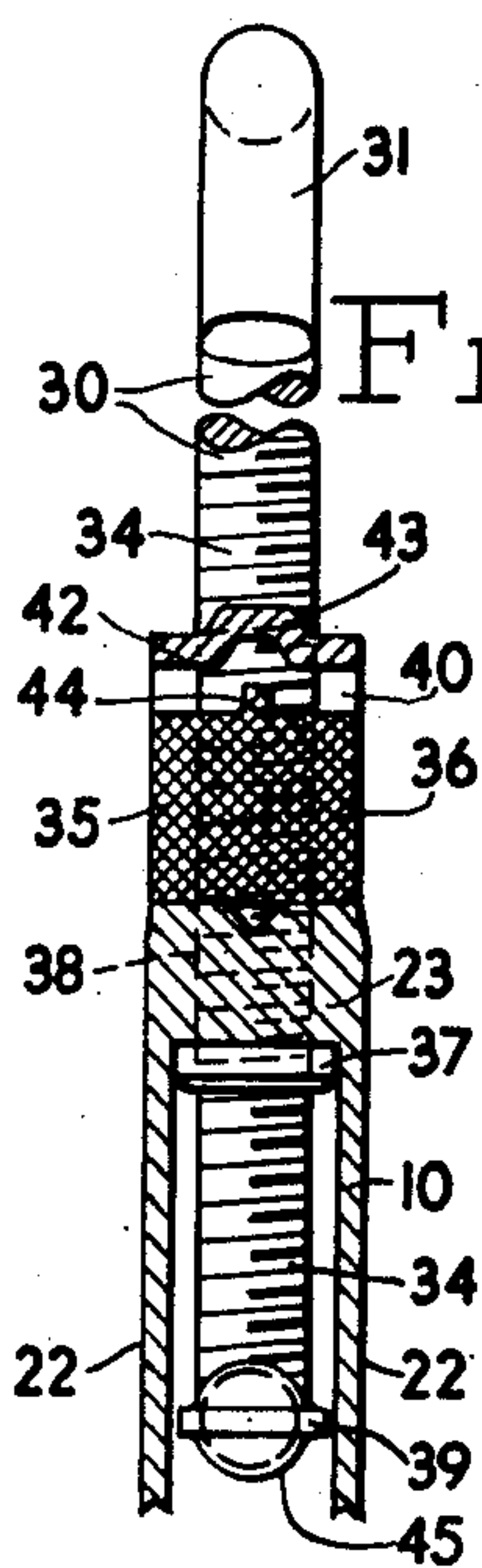
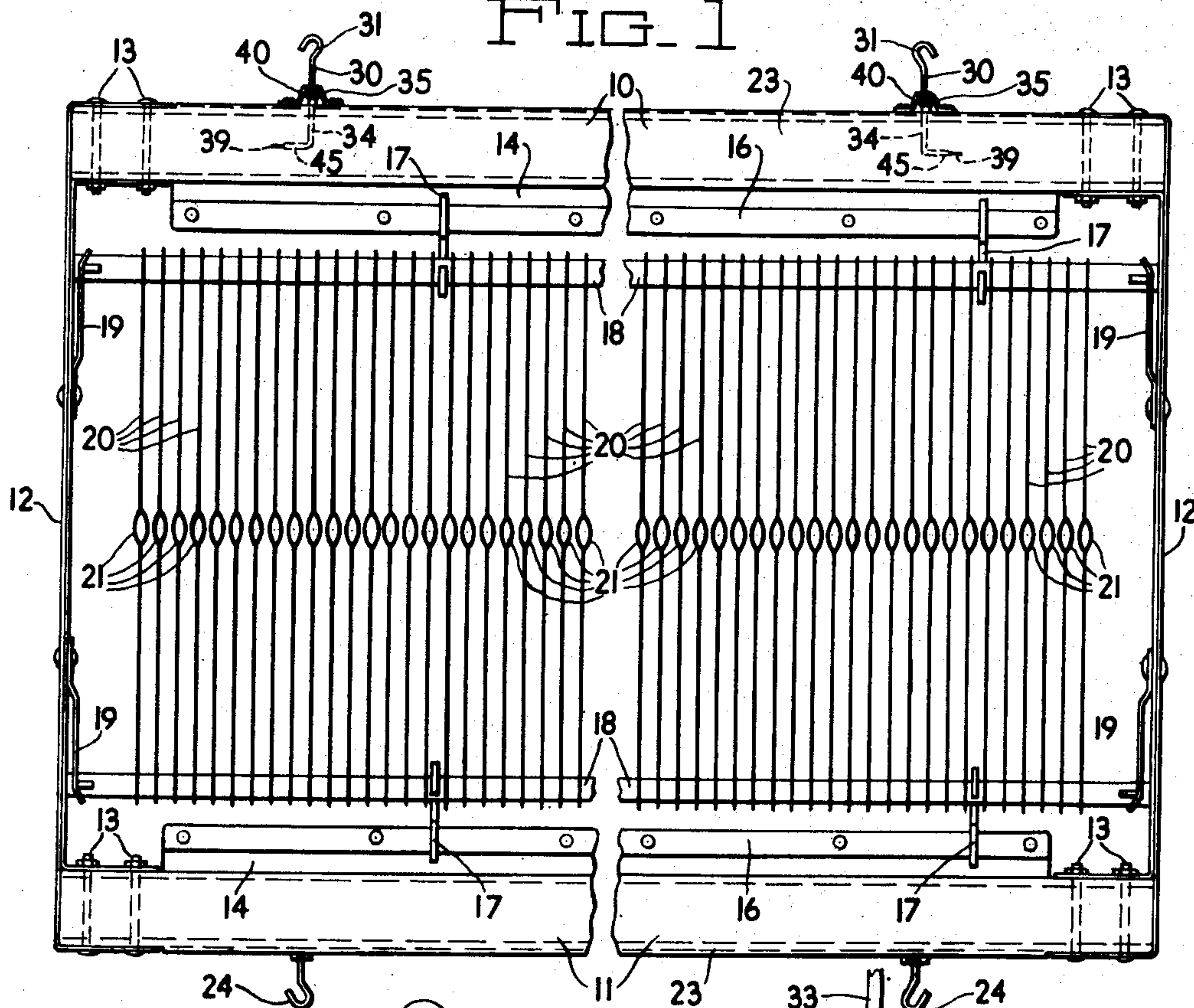
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LOOM HARNESS CONNECTOR

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FIG. 1



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## LOOM HARNESS CONNECTOR

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This invention relates to loom harness, and it relates more particularly to the means for connecting the actuating straps or cords of the harness mechanism to the heddle frames.

The principal object of the present invention is to provide, in a loom harness frame, improved means for attaching the actuating straps or cords of the harness mechanism.

A further object of the invention is to provide, in a loom harness frame, improved means for connecting the actuating straps or cords whereby the harness frame may be readily and conveniently adjusted and leveled to bring the warp sheet controlled by the harness frame to the proper location when the shuttle is picked.

A further object of the invention is to provide, in a loom harness frame, means of the character aforesaid, so constructed and arranged as to prevent turning of the strap connector hooks in the shaft whereby the same might become fouled on adjacent frames during the operation of the loom.

A further object of the invention is to provide, in a loom harness frame, means of the character aforesaid, so constructed and arranged as to permit the same to be readily assembled and mounted in the shaft of the harness frame.

The nature and characteristic features of the invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a front elevation of a loom harness frame having mounted therein means for connecting the actuating straps or cords thereto, said means embodying the main features of the present invention;

Fig. 2 is a front elevational view of a portion of the structure shown in Fig. 1, enlarged, certain of the parts being broken away;

Fig. 3 is an enlarged transverse section of a portion thereof taken on the line 3—3 of Fig. 2, an adjusting nut thereof being shown in a released position to permit adjustment of the hook member; and

Fig. 4 is a view similar to Fig. 3 but with the nut member shown in the normal locked position.

It should, of course, be understood that the description and drawing herein are illustrative merely, and that various changes and modifications may be made in the structure disclosed without departing from the spirit of the invention.

Referring to the drawing, there is therein shown a loom harness frame of the modern type in which the top and bottom rails, 10 and 11 re-

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spectively, are made of hollow extruded metal shapes of aluminum or magnesium alloys such as are now being used in lieu of the wooden shafts heretofore in common use for the top and bottom rails of loom harness frames.

The top and bottom rails 10 and 11 are joined by end struts 12 secured to the ends of the shafts 10 and 11 in any preferred manner as, for example, by means of bolts 13. The top and bottom rails 10 and 11 each have an inwardly extending flange portion 14 having formed thereon, near the inner marginal edge, a projection or rib 15 extending from end to end of the frame having a flat face upon which is secured a harder metallic bar 16. The bar 16 serves as a means for slidably mounting, in the frame, a series of slide hooks 17 for supporting the heddle rods 18 intermediate the ends thereof.

The heddle rods 18 may be secured in the frame in any preferred manner as, for example, by means of the spring tongues 19. The heddles 20 are preferably the ordinary flat steel type, each having a warp eye 21 intermediate its ends for the control of a warp end passing therethrough.

As hereinbefore described, the top and bottom rails are preferably made of hollow metal having side walls 22 and an outer marginal edge portion 23 somewhat thicker than the side walls 22.

The devices made in accordance with the present invention are ordinarily mounted in the top rail only of a loom harness frame although, if desired, such devices may be used in both the top and bottom rails.

When such devices are used only in the top rail, ordinary hooks 24, with their shank portions threaded directly in the bottom rail 11, may be used for connecting the spring tensioned (not shown) cords or straps commonly used at the bottom of the frame.

The devices of the present invention comprise, in each unit, a hook member 30, the hook portion 31 of which is adapted to engage one of the holes 32 usually provided in a series in the end portion of the actuating strap 33.

The hook member 30 is initially threaded on its shank portion 34, from the free end thereof, and upon the threaded shank portion 34 there is mounted a thumb nut 35 having a knurled portion 36 for manual actuation to adjust the up and down position of the hook member with respect to the rail 10. Said nut 35 also has a smooth cylindrical portion 37 which is positioned in the hole 38 which passes through the marginal edge portion 23 of the rail 10.

After the knurled nut 35 is mounted on the



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threaded shank 34 of the hook member 30, the end of said shank is deformed by flattening the same as at 39 thereby to spread the metal at the end of the shank portion 34 of the hook member 30 to a width corresponding to that of the hollow interior of the rail or shaft 10.

The end portion 45 of the shank 34 of the hook member 30 is also bent at right angles to the main axis thereof for a purpose to be presently explained.

Mounted on the upper outer face of the marginal edge portion 23 of the rail 10 is a U-shaped bracket member 40 which is fastened to the rail 10 by means of screws 41 threaded into the marginal edge portion 23 of the rail 10.

Said bracket member 40 is provided with a central aperture 42 through which the shank portion 34 of the hook member 30 extends, and adjacent said aperture 42 the bracket member 40 is deformed as at 43 to provide, on each side of said aperture, a recess adapted for the seating of the complementary lugs 44 on one end of the nut 35 which is threaded on the shank 34 of the hook member 30.

One end portion of the nut 35 which is threaded on the shank 34 of the hook member 30 is smooth and cylindrical, as at 37 and this portion of the nut is rotatively and slidably mounted in the aperture 38 provided in the edge portion 23 of the rail.

In assembling the device in the frame the hook member 30 having been bent and formed as hereinbefore described, the hook end thereof is passed through the aperture 42 in the U-shaped bracket 40, and the bent and formed end portion 45 of the shank portion 34 of the hook member 30 is inserted through the aperture 38 in the edge portion 23 of the rail 10, and is positioned in the hollow interior of said rail 10. The bracket member 40 is then secured by means of the screws 41 to the edge portion 23 of the rail 10 with the smooth cylindrical portion 37 of the nut 35 positioned in the aperture in the edge portion 23 of the rail 10.

It will be noted that by the foregoing arrangement proper adjustment for positioning or leveling the sheet of warp controlled by the harness frame can be readily effected by first relieving the tension on the supporting hook and then adjusting the same by turning the knurled nut 35 to the proper position, and thereafter, when the tension is imparted to the hook member, the same will be locked against improper change in the adjustment by reason of the lugs 44 seating themselves in the recess 43 in the bracket 40.

It will be noted that the arrangement is such that at no time will the hook portion of the hook member be permitted to rotate whereby any part of the same might project beyond the plane of the side face of the rail in which it is mounted and thus become fouled on portions of adjacent frames in the loom when the shedding takes place.

I claim:

1. In a loom harness, the means for adjustably connecting an actuating strap to a harness frame having a hollow metallic rail, said means comprising a hook member mounted in the outer edge portion of the rail and having a hook portion for engaging a portion of the strap, said hook member having a threaded shank portion, an adjusting nut threaded thereon, the inner end of the shank portion of the hook member extend-

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ing into the interior of the rail and having a portion bearing against the side walls of the rail thereby to prevent rotation of the hook member.

2. In a loom harness, the means for adjustably connecting an actuating strap to a harness frame having a hollow metallic rail, said means comprising a hook member mounted in the outer edge portion of the rail and having a hook portion for engaging a hole in the strap, said hook member having a threaded shank portion, an adjusting nut threaded thereon, the inner end of the shank portion of the hook member having a portion bearing against the side walls of the rail thereby to prevent rotation of the hook member.

3. In a loom harness, the means for adjustably connecting an actuating strap to a harness frame having a hollow metallic rail, said means comprising a hook member having a hook portion for engaging a hole in the strap, said hook member having a threaded shank portion, an adjusting nut threaded thereon, the inner end of the shank portion of the hook member extending into the interior of the rail and having an angularly extending portion with a part bearing against the side walls of the rail serving to prevent rotation of the hook member.

4. In a loom harness, the means for adjustably connecting an actuating strap to a harness frame having a hollow metallic rail, said means comprising a hook member having a hook portion for engaging a hole in the strap, said hook member having a threaded shank portion, an adjusting nut threaded thereon, the inner end of the shank portion of the hook member extending into the interior of the rail and having an angularly extending portion serving to prevent rotation of the hook member, and the end of said angularly extending portion being spread to the width of the hollow interior of the rail in which said portion is positioned.

5. In a loom harness, the means for adjustably connecting an actuating strap to a harness frame having a hollow metallic rail, said means comprising a hook member having a hook portion for engaging a hole in the strap, said hook member having a threaded shank portion, an adjusting nut threaded thereon, the inner end of the shank portion of the hook member extending into the interior of the rail and having an angularly extending portion serving to prevent rotation of the hook member, the end of said angularly extending portion being spread to the width of the hollow interior of the rail in which said portion is positioned, and means controlled by the tension on the hook member for securing the adjusting nut against undesired movement.

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